

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 2000349203  
PUBLICATION DATE : 15-12-00

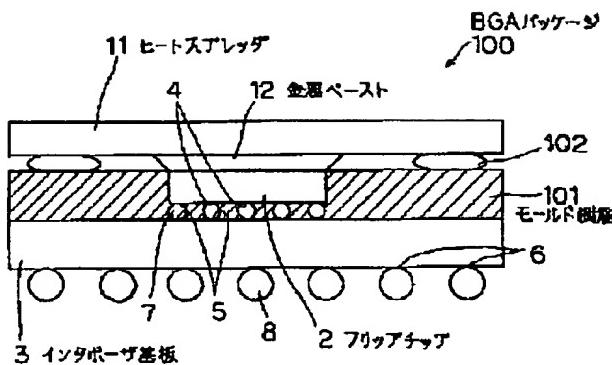
APPLICATION DATE : 07-06-99  
APPLICATION NUMBER : 11159777

APPLICANT : NEC CORP;

INVENTOR : KATO CHIKAYUKI;

INT.CL. : H01L 23/28 H01L 21/56 H01L 21/60  
H01L 23/12

TITLE : CIRCUIT DEVICE AND MANUFACTURE  
THEREOF



ABSTRACT : PROBLEM TO BE SOLVED: To improve productivity and strength of a BGA(ball-grid-array) package, where a flip chip is mounted on an interposer substrate.

SOLUTION: The gap between the lower surface of a flip chip 2 and the upper surface of an interposer substrate 3 is filled with a single mold resin 101, which is filled with the gap between the upper surface of the interposer substrate 3 and the lower surface of a heat spreader 11 as well. The single mold resin 101 is made to contact with a large area at each part for improved joint strength, while it acts as both an underfill resin and a stiffener for reduced manufacturing processes and components.

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